

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

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CATGGTAGACGGCTGCCCGGAGGGACCACGCGTCTGAGACCGGCGATCGGACCGCCAAAACCATGGGTAGCAATCGGGGCCGCAAG  
GCCGGAGGGGGCTCTCAGGACTTCGGCGCGGGGACTCAAGTACAACCTCCCGCTAGAGAACATGAATGGCTTTGAGGAGGGTGTGGA  
GTTCTCTGCCGGAACAATGCCAAGAAAGTGGAGAAGCGAGGCCCCAGGCGCTGGGTGGTGTCTGGTGGCAGTGCTGTTTCACTTCC  
TCTTGCTCTCCCTCATGGCTGGCTTGTCTGGTGTGGCACTTCCATTATCGGAATGTGCGGGTTCAAAAAGTCTTCAATGGCCATCTG  
AGGATCACAAATGAGATCTTTCTGGATGCGTATGAGAACTCCACCTCCACAGAGTTTATCAGCCTGGCCAGCCAGGTGAAGGAGGC  
GCTGAAGCTGCTGTACAATGAAGTCCCTGTCTGGGTCCCTACCACAAGAGTGGCTGTAACTGCCTTCAGTGAGGGCAGTGTC  
TCGCCTACTACTGGTCAGAGTTTACAGATCCCCCACACCTGGCAGAAGAGGTTGATCGCGCCATGGCTGTGGAGCGAGTTGTAACA  
TTGCCACCCCGAGCACGGGCACTGAAATCCTTCGTGCTAACATCTGTGGTGGCTTCCCCATTGACCCCAAGATGCTGCAGAGGAC  
TCAGGACAACAGCTGCAGTTTGTGCTGAGCAGCAACAGCAGCAAGATTACAGTCCACTTCACTACCCCTGGCTTCCCCAACAGTCCCT  
ACCCGGCGCATGCCCGCTGCCAGTGGGTCTGCGGGGGGACGCCGACTCTGTGCTGAGCCTCACCTTCCGAAGCTTTGATGTCGCT  
CCCTGTGATGAGCATGGCAGTGACCTGGTACCGTGTATGATAGCCTGAGCCCCATGGAACCCACGCTGTGGTGGCGCTGTGTGG  
CACCTTCTCACCTTCTTACAACCTGACTTTCCTCTCCTCCAGAACGTCTTCCTTGTACGCTGTATAACCAATACTGACCGCGGAC  
A/PCCTGGCTTTGAGGGCCTTTCTTCCAGCTGCCCAAGATGAGCAGCTGTGGCGGCTTTTGTAGTGACACCAAGGGACATTTAGC  
AGCCCCCTACTATCCAGGCCACTACCCGCCCAACATCAACTGCACATGGAATATCAAGGTGCCCAACAACCGGAACGTGAAGGTGCG  
CTTCAAACCTTCTATCTGGTGGACCCCAACGTACAGTGGGCTCCTGCACCAAGGACTATGTGGAGATCAACGGGGAGAAGTACT  
CGGGTGAGAGGTCCAGTTTGTGGTGAGCAGCAACAGCAGCAAGATTACAGTCCACTTCCATTCTGATCACTCGTACAGGCAGCAC  
GGGTTCCTAGCTGAGTACCTCTCCTACGACTCCAACGACCCGTGCCAGGGATGTTTATGTGCAAGACTGGACGGTGCATCCGAAA  
GGAAGTGCCTGCGACGGCTGGGAGACTGCCCGGATTATAGTGATGAGCGTTACTGCCGATGCAATGCCACCCACAGTTACGT  
GCAAAAACAGTTTCTGCAAGCCCTCTTCTGGGTCTGTGACAGTGTCAACGACTGTGGGGACGGAAGTGACGAGGAGGGCTGCAGC  
TGCTCTGCTGGGAGTTTCAAGTGTTCATGGGAAGTGTCTCCCTCAGAGCCAGAAGTGAATGGGAAGGACAACGTGTGGAGATGG  
GTCTGACGAGGCTTCATGTGACAGCGTGAATGTGCTCTCTTGACCAAATATACCTACCGCTGCCAAAATGGCCCTCTGTCTGAGCA  
AGGGCAACCTGAGTGTGATGGGAAGACGAGTGTAGCGATGGCTCCGATGAGAAAAACTGTGACTGTGGGCTGCGATCCTTTACC  
AAACAGGCTCGCGTGGTGGTGGCAGAAATGCCGACGAGGGCGAGTGGCCTGGCAGGTGAGCCTCCACGCCCTGGGCCAGGGCCA  
CTTGTGTGGGCTCGCTCATCTCTCTGACTGGCTGGTCTCTGCAGCTCATTGCTTTCAGGATGACAAAAATTTCAAGTACTCAG  
ACTACAGATGTGGACGGCTTCTTGGGTCTGCTGGACAGAGCAAGCGCAGTGCCTCTGGGGTGCAGGAGCTGAAGCTCAAACGT  
ATCATCACCCACCTTCTTCAATGATTTACCTTCGACTATGACATCGCCTTGCTGGAGCTGGAGAAGTGGTGGAGTACAGCAC  
CGTCGTGCGCCCCATCTGCCTGCCTGATGTACCCATGTCTTCCCTGTGGCAAGGCCATCTGGGTACAGGCTGGGGGCACACAA  
AAGAGGGAGGTACCGGAGCGCTGATCTGCAGAAGGGTGAGATCCGTGTATCAACAGACCACCTGTGAGGACCTCATGCCGAG  
CAGATCACCCACGAATGATGTGTGGGTTCCTCAGTGGGGGTGGGACTCCTGCCAGGGTGACTCTGGTGGCCCTTGTCAAG  
CGCGGAGAAAGATGGGCGAATGTTCCAGGCTGGTGTGGTGGTGGGTTGAAGGCTGCGCTCAGAGGAACAAGCCAGGCGGTGACA  
CAAGGCTCCCTGTAGTTCCGGGACTGGATCAAAGAGCACACTGGGGTATAGCAGCATGGACAGACAGCCGACCACAAACACCCACAG  
GGATGCCCCGACATGCACACCTGGATACAGGAGAGGAACACTGACGACATTATGCTGTGGCTCCCCCCCCCAACACAACCCAGAC  
TGTGAACCTGCATCCTTAGGACTCAGAGTTCTTCCAAAGTGGGACCCCCCTCAAGAGTTGGAGAGAGAACTTGGCTGTAGCGGCCCA  
GCCTGGGGGCAAGGGTTTGTATGGCAGCCTTCCCCCTCTAGCCCTGAGCTGGGTGAAGATGATGCTGTCCCGGAGAGCTGCTTCCAA  
CTGTATTGAGCTCCCGGAGCCCTATGGGAGGAGGGGCTCAGGGTCACTCTTTTCAGGAAGCGCCAGCCCTAGGAACCCAGAAA  
AGAGTGGTACCTAAGGCTGAAATTGTTTGTGTTGCCAGGGGTGGGTATTGAGAGTAAACATTTTATTTCTTTTAAAAA  
AAAAA (SEQ ID NO:1)

MGSNRGRKAGGGSQDFGAGLKYNRLNMGFEEGVEFLPANNA  
KKVEKRGPRRWVVLVAVLFSFLLLSLMAGLLVWHFHYRNVVRVQKVFNGHLRITNEIFL  
DAYENSTSTEFISLASQVKEALKLLYNEVPVLGPYHKSAVTAFSEGSVIAYYWSEFS  
IPPHLAEVDRAMAVERVVTLPPRARALKSFVLTSSVAFPIDPRMLQRTQDNSCSFAL  
HAHGAAVTRFTTPGFNPSPYPAHARCQWVLRGDADSVLSLTFRSFDVAPCDEHGS DLV  
TVYDSLSPMEPHAVVRLCGTFSPSYNLTLSSQNVFLVTLITNDRRHHPGFEATFFQL  
PKMSSCGFLSDTQGTFSPPYPGHYPNINCTWNKVPNNRNKVRFLFYLVDPNV  
PVGSKTDYVEINGEKYCGERSQFVSSNSSKITVHFHSDHSYTDGTGLAEYLSYDSN  
DPCPGMFMCKTGRCIRKELRCDGWADCPDYSDERYCRNATHQFTCKNQFCKPLFWVC  
DSVNDGCGDSDEEGCSCPAGSFKCSNGKCLPQSQKCNKGKNDGDSDEASCD SVNVS  
CTKYTYRCQNGLC LSKNPECDGKTDSDGSDEKNDCGLRSFTKQARVVGGTNADEG  
EWPWQVSLHALGQGHLCASLISPDLVSAAHCFQDDKNFKYSDYTMWTAFLGLLDQS  
KRSASGVQELKLKRIITHPSFNDFTFDYDIALLELEKSVEYSTVVRPICLPDATHVFP  
AGKAIWVTGWGHTKEGGTGALILQKGEIRVINQTTCEDLMPQQITPRMCMCVGLSGGV  
DSCQDGGPLSSAEKDGRMFQAGVVSWEGBCAQRNKPVGVTPLPVVRDWIKEHTGV  
(SEQ ID NO:2)

FIGURE 1

APPROVED	D.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

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underlined = deleted in targeting construct

[ ] = sequence flanking Neo insert in targeting construct

CATGGTAGACGGCTGCCCGGAGGGACCACGCTCTGAGACCGGCGATCGGACCGCCAAAA  
CCATGGGTAGCAATCGGGGCCGCAAGGCCGGAGGGGGCTCTCAGGACTTCGGCGCGGGAC  
TCAAGTACAACCTCCCGGCTAGAGAACATGAATGGCTTTGAGGAGGGTGTGGAGTTCTTGC  
CTGCGAACAATGCCAAGAAAGTGGAGAAGCGAGGCCCGAGGCGCTGGGTGGTGTGGTGG  
CAGTGTCTTACGCTTCTCTTGTCTCCCTCATGGCTGGCTTGTGGTGTGGCACTTCC  
ATTATCGGAATGTGCGGGTTCAAAAAGTCTTCAATGGCCATCTGAGGATCACAAATGAGA  
TCTTTCTGGATGCGTATGAGAACTCCACCTCCACAGAGTTTATCAGCCTGGCCAGCCAGG  
TGAAGGAGGCGCTGAAGCTGCTGTACAAATGAAGTCCCTGTCTGGGTCCCTACCACAAGA  
AGTCCGGCTGTAACCTGCCCTTCACTGAGGGCAGTGTATCGCCTACTACTGGTCAGAGTTCA  
GCATCCCCCAGACCTGGCAGAAGAGGTTGATCGCGCCATGGCTGTGGAGCGAGTTGTAA  
CATTGCCACCCCGAGCACGGGCACTGAAATCTTCTGTGCTAACATCTGTGGTGGCCTTCC  
CCATTGACCCCGAATGCTGCGAGAGGACTCAGGACAACAGCTGCAGTTTGTCCCTGCTATG  
CCCATGGTGCAGCAGTGACACGCTTCACTACCCCTGGCTTCCCAACAGTCCCTACCCGG  
CGCATGCCCGCTGCCAGTGGGTCTTGGCGGGGGACGCGGACTCTGTGCTGAGCCTCACCT  
TCCGAAGCTTTGATGTGCTCCCTGTGATGAGCATGGCAGTGACCTGGTCACCGTGTATG  
ATAGCCTGAGCCCCATGGAACCCACGCTGTGGTGGCGGTGTGTGGCACCCTTCTCACCCCT  
CCTACAACCTGACTTTCTCTCCCTCCAGAACGCTCTTCTTGTACGCTGATAACCAATA  
CTGACCGCGGACATCTTGGCTTTGAGGGCACTTTCTTCCAGCTGCCCAAGATGAGCAGCT  
GTGGCGGCTTTTGTAGTGACACCCAAGGGACATTTAGCAGCCCCTACTATCCAGGCCACT  
ACCCGCCCAACATCAACTGACATGGAATATCAAGGTGCCCAACAAACCGGAACGTGAAGG  
TGCGCTTCAAACTCTTCTATCTGGTGGACCCCAACGTACCAGTGGGCTCTCTACCAAGG  
ACTATGTGGAGATCAACGGGGAGAAAGTACTGCGGTGAGAGGTCCAGTTTGTGGTGAACA  
GCAACAGCAGCAAGATTACAGTCCACTTCCATTCTGATCACTCGTACACGGACACCGGGT  
TCCTAGCTGAGTACCTCTCTTACGACTTCCAAACGACCCGTGCCAGGGATGTTTATGTGCA  
AGACTGGACGGTGCATCCGAAAGGAACGTGCGCTGCGACGGCTGGGCAGACTGCCCGGATT  
ATAGTGATGAGCGTTACTGCCGATGCAATGCCACCCACAGTTTACGCTGCAAAAACAGT  
TCTGCAAGCCCCCTTCTTGGGTCTGTGACAGTGTCAACGACTGTGGGGACGGAAGTGACG  
AGGAGGGCTGCAGCTGTCTTGTGGGAGTTTCAAGTGTTCGAATGGGAAGTGTCTCCCTC  
AGAGCCAGAAGTGTAAATGGGAAGGACAACGTGTGGAGATGGGTCTGACGAGGCTTCAAGG  
ACAGCGTGAAATGTCCTCTCTTGGCAACAAATATACCTACCGCTGCCAAAATGGCCTCTGTC  
TGAGCAAGGGCAACCCGTAGTGTGATGGGAAGACGGACTGTAGCGATGGCTCCGATGAGA  
AAAACGTGACTGTGGGCTGCGATCTTACCACAAACAGGCTCGCGTGGTGGTGGCACGA  
ATGCGGACGAGGGCGAGTGGCCCTGGCAGGTGAGCCTCCACGCCCTGGGCCAGGGCCACT  
TGTGTGGGGCTCGCTCATCTCTCTGACTGGCTGGTCTCTGCAGCTCATTGCTTTTACGG  
ATGACAAAAATTTCAAGTACTCAGACTACACGATGTGGACGGCCTTCTGGGTCTGCTGG  
ACCAGAGCAAGCGCAGTGCCCTCGGGGTGCAGGAGCTGAAGCTCAAACGTATCATCACCC  
ACCTTCTCTTCAATGATTTTACCTTCGACTATGACATCGCCTTGCTGGAGCTGGAGAAGT  
CGGTGGAGTACAGCACCGCTCGTGGCGCCCATCTGCCCTGCTGATGCTACCCATGCTTTCC  
CTGCTGGCAAGGCCATCTGGGTACAGGCTGGGGGCACACAAAAGAGGGAG [GTACCGGA  
GCGCTGATCTTGCAAGGGGTGAGATCCGTGTCTATCAACAGACACCTGTGAGGACCTC  
ATGCCGAGCAGATCACCCACGAATGATGTGTGGGTTCCTCAGTGGGGGTGTGGAC  
TCCTGC] CAGGGTGACTCTGGTGGCCCCCTTGTCAAGCGCGGAGAAAG [ATGGGCGAATGT  
TCCAGGCTGGTGTGGTGGAGTGGGGTGAAGGCTGCGCTCAGAGGAACAAGCCAGGCGTGT  
ACACAAGGCTCCCTGTAGTTCCGGGACTGGATCAAAGAGCACACTGGGGTATAGCAGCATG  
GACAGACAGCCGACCACAAAACACCCACAGGGATGCCCCGACATGCACACCTGGATACAGGA  
GAGGAACACTGACGACATTTATGCTGTGGCCTCCCCCCCCCAACACAACCCAGACTGTGA  
ACTGCATCTTAGGACTCAGAGTTCTTCCAAAGTGGGACCCCTCAAGAGTTGGAGAGAG  
AACTTGGCTGTAGCGGGCCAGCCTGGGGGCAAGGGTTTGTATGGCAGCCTTCCCCCTCTA  
GCCCTGAGCTGGGTGAAGATGATGTCTCCCGAGAGCTGCTTCCAACTGTCTATTGAGCT  
CCCGGGAGCCCCATGGGAGGAGGGGCTCAGGGTCACTCTTTTTCAGGAAGCGCCAGCCCTA  
GGAACCCAGAAAAGAGTGGTACCTAAGGCTGAAAT] TGTTTTGTGTTGCCAGGGGTGG  
GTATTTGAGAGTAAAACATTTTATTTCTTTTAAAAA

FIGURE 2A



## Gene Sequence Structure

2466 bp

Sequence Deleted

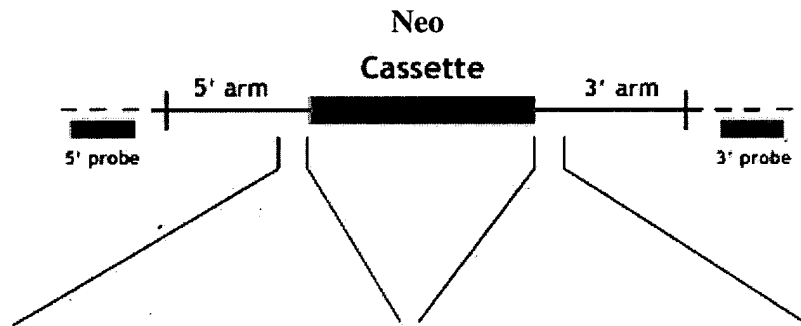
2505 bp

Size of full-length  
cDNA: 3106 bp

Targeting Vector\*  
(genomic sequence)

Construct Number: 2035

Arm Length:  
5': 3.8 kb  
3': 1 kb



———— Targeting Vector  
----- Endogenous Locus

\* Not drawn to scale

5' > TTCCCCATTGAGACTGGCTTA  
CCCCGGAAGCTGCCTGCCTCAGTC  
TCCCGCTTCCTGTCTCCCCAGGTA  
CCGGAGCGCTGATCCTGCAGAAGG  
GTGAGATCCGTGTCATCAACCAGA  
CCACCTGTGAGGACCTCATGCCGC  
AGCAGATCACCCACGAATGATGT  
GTGTGGGTTTCCTCAGTGGGGGTG  
TGGACTCCTGC < 3'  
(SEQ ID NO: 3)

5' > ATGGGCGAATGTTCCAGGCTG  
GTGTGGTGGGCTGGGGTGAAGGCT  
GCGCTCAGAGGAACAAGCCAGGCG  
TGTACACAAGGCTCCCTGTAGTTC  
GGGACTGGATCAAAGAGCACACTG  
GGGTATAGCAGCATGGACAGACAG  
CCGACCACAAACACCCACAGGGAT  
GCCCACATGCACACCTGGATACA  
GGAGAGGGACA < 3'  
(SEQ ID NO: 4)

FIGURE 2B